

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,669,820 B2
DATED : December 30, 2003
INVENTOR(S) : Michael Odell

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 4,

Line 51, "forma" should be -- former --
Line 52, "twin-wire" should be -- a twin-wire --
Line 53, "box, which said" should be -- box, said --
Line 58, "include" should be -- includes --
Line 66, "n" should be -- in --

Column 5,

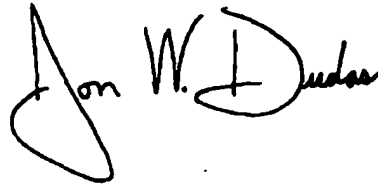
Line 27, "fanning" should be -- forming --
Line 31, "flint" should be -- first --
Line 33, "fanned" should be -- formed --
Line 48, "thin" should be -- than --
Line 52, "fist" should be -- first --

Column 6,

Line 10, "former" should be -- former comprising: --
Line 34, "suck" should be -- such --

Signed and Sealed this

Twenty-third Day of March, 2004

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a cursive "Dudas".

JON W. DUDAS
Acting Director of the United States Patent and Trademark Office

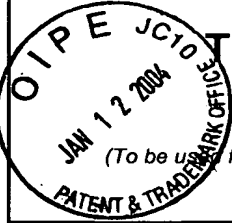
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PTO/SB/21 (12-97)

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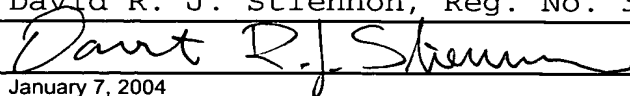
 TRANSMITTAL FORM (To be used for all correspondence after initial filing)	Application No.	10/054,349
	Filing Date	January 18, 2002
	First Named Inventor	Michael Odell
	Group Art Unit	1731
	Examiner Name	M. Halpern
Total Number of Pages in This Submission		Attorney Docket Number
		FORSAL-33

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts Under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (For an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition Routing Slip (PTO/SB/69) And Accompanying Petition <input type="checkbox"/> To Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Small Entity Statement <input type="checkbox"/> Request for Refund	<input type="checkbox"/> After Allowance Communication To Group <input type="checkbox"/> Appeal Communication to Board Of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Additional Enclosure(s) (Please identify below):
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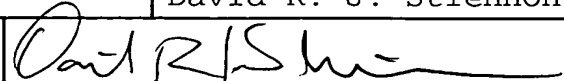
Certificate
JAN 15 2004
of Correction

- PTO SB/44
- Request for Certificate of Correction with attached

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	David R. J. Stiennon, Reg. No. 33212
Signature	
Date	January 7, 2004

CERTIFICATE OF MAILING

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION



PATENT NO : 6,669,820 *B2*
DATED : December 30, 2003
INVENTOR(S): Michael Odell

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Column 4

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Line 52, "fist" should be --first--

Column 6

Line 10, "former" should be --former comprising:--

Column 6

Line 34, "suck" should be --such--

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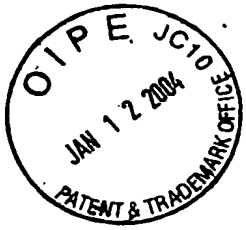
PATENT NO. 6,669,820

STIENNON & STIENNON
P.O. Box 1667
Madison, WI 53701-1667

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In The United States Patent And Trademark Office

Applicant: Michael Odell Date: January 7, 2004
Date Filed: January 18, 2002 Docket No.: FORSAL-33
App. No.: 10/054,349 Art Unit: 1731
Patent No.: 6,669,820 Issue Date: December 30, 2003
For: Twin-Wire Former Examiner: M. Halpern

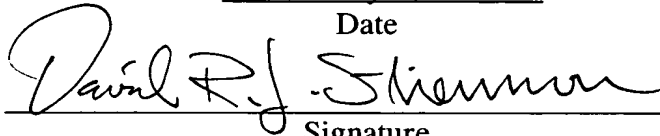
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P.O. Box 1450
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on January 7, 2004

Date



Signature

David R. J. Stiennon, Reg. No. 33212

Name of applicant, assignee or Registered Representative

**Request for Certificate of Correction
With Expedited Processing**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant requests that a Certificate of Correction be issued as shown on the
PTO/SB/44 enclosed herewith.

This request for correction is incurred solely through the fault of the United States
Patent and Trademark Office, as is clearly disclosed in the records of the Office. The
accompanying documentation unequivocally supports this assertion of USPTO error, and

JAN 15 2004

Applicant: Michael Odell
Application No.: 10/054,349
Art Unit: 1731

includes copies of the relevant pages of the record, so that this request may be processed without the file. The relevant sections of the record have been highlighted in yellow.

Expedited processing is requested under the provisions of the August 21, 2002, Official Notice in 1262 TMOG 96.

Applicant respectfully requests that the typographical errors in the text of the published patent that were not in the original application be corrected by a Certificate of Correction under 37 CFR 1.322.

In column 4, line 51 of the issued patent, "forma" should be --former-- as written in the amendment dated May 20, 2003, on page 2, line 2.

In column 4, line 52 of the issued patent, "twin-wire" should be --a twin-wire-- as written in the amendment dated May 20, 2003, on page 2, line 3.

In column 4, line 53 of the issued patent, "box, which said " should be --box, said-- as written in the amendment dated May 20, 2003, on page 2, line 3-4.

In column 4, line 58 of the issued patent, "include" should be --includes-- as written in the amendment dated May 20, 2003, on page 2, line 7.

In column 4, line 66 of the issued patent, "n" should be --in-- as written in the application dated January 18, 2001, on page 9, line 14.

In column 5, line 27 of the issued patent, "fanning" should be --forming-- as written in the application dated January 18, 2001, on page 10, line 9.

In column 5, line 31 of the issued patent, "flint" should be --first-- as written in the application dated January 18, 2001, on page 10, line 12.

In column 5, line 33 of the issued patent, "fanned," should be --formed,-- as written in the application dated January 18, 2001, on page 10, line 14.

Applicant: Michael Odell
Application No.: 10/054,349
Art Unit: 1731

In column 5, line 48 of the issued patent, "thin" should be --than-- as written in the application dated January 18, 2001, on page 10, line 26.

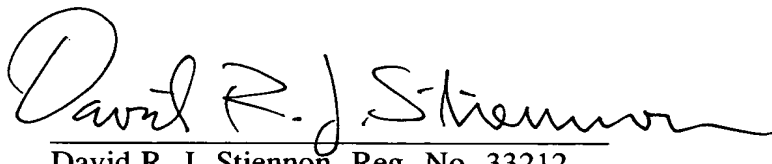
In column 5, line 52 of the issued patent, "fist" should be --first-- as written in the application dated January 18, 2001, on page 11, line 3

In column 6, line 10 of the issued patent, "former" should be --former comprising:-- as written in the application dated January 18, 2001, on page 5, line 2.

In column 6, line 34 of the issued patent, "suck" should be --such-- as written in the application dated January 18, 2001, on page 12, line 21.

Applicant believes that these Office mistakes include an error of consequence that merits the issuance of a Certificate of Correction as it is of such a nature that the intended meaning may not be obvious from the context.

Respectfully submitted,

A handwritten signature in black ink, reading "David R. J. Stiennon". The signature is fluid and cursive, with a large initial "D" and a long, sweeping underline.

David R. J. Stiennon, Reg. No. 33212
Attorney for Applicant
Stiennon & Stiennon
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Relevant pages from printed U.S. Patent No. 6,669,820

FIG. 6 shows an arrangement with a minimum number of loading blades and vacuum zones.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The twin-wire former shown in FIG. 1 includes a first forming wire loop 10, the running of which is guided by a first forming roll 11 and by guide rolls 12, 12b, and a second forming wire loop 20, the running of which is guided by guide rolls 21, 21a and by a second forming roll 22. A pulp suspension is fed from a headbox 9 into a forming gap, which is defined by the first forming roll 11 on the side of the first wire 10 and by a breast roll 21a on the side of the second wire 20. The joint run of the wires 10 and 20 extends substantially in the vertical direction from a suction sector 11a of the first forming roll 11 all the way to a suction sector 22a of the second forming roll 22, after which the first wire 10 is guided by a guide roll 12b to separate from a web W, which will run with the second wire 20.

In the twin-wire zone, that is, in the joint run of the wires 10, 20, there is, in addition to the above-mentioned forming rolls 11, 22, also a set of dewatering elements, of which a dewatering box 30 is located inside the first wire loop 10 immediately after the first forming roll 11, and a suction box 42 is located inside the second wire loop 20 immediately before the second forming roll 22. In addition, in the area of the dewatering zone there are a pre-loading blade 41, which is located inside the second wire loop 20 opposite to the area remaining between the forming roll 11 and the dewatering box 30, and loadable blade elements 40, which are located inside the second wire loop 20 opposite to the dewatering box 30.

On the surface of the dewatering box 30 in contact with the wire 10 there are dewatering blades 34 extending in the cross direction across the web and controlling the running of the wire, and between which dewatering blades water is removed from the web W in the direction of the dewatering box 30. The internal space of the dewatering box 30 is divided by partitions 33 into five successive zones 30a, 30b, of which three are connected to a vacuum source while a substantially normal pressure prevails in two. The vacuum zones 30a and the vacuum-free zones 30b alternate in the running direction of the web in such a way that each vacuum-free zone 30b is preceded and followed by a vacuum zone 30a. When required, different vacuums p_1 , p_2 , p_3 can be arranged in the different vacuum zones 30a. The vacuums are preferably arranged to increase in the running direction of the web ($p_1 < p_2 < p_3$). Water drained through the wire 10 is also guided away through the vacuum-free zones 30b, which dewatering is boosted by the pressure pulses applied to the web by the dewatering blades 34 and the loading blades 40 alternately.

At the dewatering box 30 inside the second wire loop 20 there are two loadable blade elements 40 which extend in the cross direction across the web supporting and loading the wire 20 and doctoring water from its surface. The loading blades 40 also produce pressure pulses in the web W being formed, in consequence of which dewatering becomes more effective and the formation of the web is improved. The loading blades 40 are placed, in a manner known in itself, in alternating positions with the dewatering blades 34 of the deck of the dewatering box 30. In the arrangement according to the invention, the loading blades 40 are placed specifically in those spaces between the dewatering blades 34 in which there is a vacuum-free zone 30b on the side of the dewatering box 30. In that connection, the suction effect applied

by the vacuum zones 30a on the web and the pressure pulse applied by the loading blades 40 to the web alternate in the running direction of the web and they never occur at the same time.

FIG. 2 shows a twin-wire former similar to the one shown in FIG. 1, in which the dewatering blades 34 are arranged to curve the wires 10, 20 while these travel over the dewatering box 30. This increases the pressure applied by the wires 10, 20 to the web and thus improves the efficiency of dewatering. The vacuum zones 30a and the vacuum-free zones 30b are arranged to alternate in the running direction of the web, and the loading blades 40 are located opposite to the vacuum-free zones 30b.

FIG. 3 shows a blade gap former in which in the forming gap area the running of the wires 10, 20 is guided by two breast rolls 12a and 21a and by a suction forming shoe 35 having a curved surface. After the forming shoe 35, a dewatering box 30 is located inside the first wire loop 10, opposite to a set of loading blades 40 located inside the second wire loop 20. The dewatering box 30 is divided by partitions 33 into sections in such a way that a total of four vacuum zones 30a and three vacuum-free zones 30b is formed, which zones alternate in the running direction of the web W. Three loading blades 40 are located inside the second wire loop 20, each one opposite to a vacuum-free zone 30b.

FIG. 4 shows a roll gap former whose dewatering box 30 includes five vacuum zones 30a and four vacuum-free zones 30b, four loading blades 40 being placed opposite to the vacuum-free zones inside the second wire loop 20.

In the roll gap former shown in FIG. 5, the first zone 31 of a dewatering box 30 after a forming roll 11 is vacuum-free, and opposite to it there is a pre-loading blade 41 inside the second wire loop 20. After the first zone 31 there are three further vacuum zones 30a and two vacuum-free zones 30b, and opposite to the vacuum-free zones there are two loading blades 40 on the side of the second wire loop 20.

In the example shown in FIG. 6 there is only one loading blade 40 and it is located opposite to a vacuum-free zone 30b remaining between two vacuum zones 30a. The dewatering box 30 is followed further by a suction box 42 placed before the second forming roll 22. The loading blade 40 is located in the same wire loop 10 as the first forming roll 11, and the vacuum box 30 is located in the opposite wire loop 20 before the second forming roll 22.

Above, the invention has been described with reference to a few examples only. However, the invention is not intended to be limited to these examples only, but many other modifications of the invention are also possible with the scope defined by the appended claims.

I claim:

1. A twin-wire former in a paper machine including two forming wire loops, which define between themselves twin-wire zone, and at least one dewatering box, which said at least one dewatering box is located inside one of the wire loops to remove water through said wire from a web being formed, and at least one loading blade, which is located opposite to the dewatering box inside the other wire loop in contact with the other wire, which dewatering box include at least three successive dewatering zones, wherein vacuum zones alternate with vacuum-free zones, and the loading blade or blades is/are placed inside one of the wire loops at a location where it or them is/are opposed by one of the vacuum-free zone(s), which is preceded and followed by one of the vacuum zone(s).

2. The twin-wire former of claim 1 wherein vacuums of different magnitude are arranged in at least two vacuum zones of the dewatering box.

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3. The twin-wire former of claim 2 wherein the magnitude of the vacuum of one of the at least two vacuum zones of the dewatering box which is greater than the magnitude of another vacuum zone which precedes it in the running direction of the web.

4. The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a linear path.

5. The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a curved path.

6. The twin-wire former of claim 1 wherein in the running direction of the web before the dewatering box there is a pre-loading blade located inside the wire loop opposite to the dewatering box.

7. The twin-wire former of claim 1 wherein at the beginning of the dewatering box there is a vacuum-free zone which is opposed by a pre-loading blade located on the side of the second wire loop.

8. A twin-wire former in a paper machine, the former comprising:

a first forming wire loop;

a second forming wire loop, wherein portions of the first forming wire loop and the second forming wire loop extend adjacent one another to define a twin-wire zone;

at least one dewatering box located inside the first forming wire loop, to remove water through the first forming wire loop from a web being formed, the at least one dewatering box having a first zone, a second zone downstream of the first zone, and a third zone downstream of the second zone, the first zone and the third zone having vacuum applied thereto, and the second zone having no vacuum applied thereto; and

at least one loading blade, which is located opposite to the at least one dewatering box inside the second wire loop, the at least one loading blade being in contact with the second wire loop at a location opposed by the second zone, such that the at least one loading blade is positioned such that it is preceded and followed by zones of the at least one dewatering box having vacuum applied thereto.

9. The twin-wire former of claim 8 wherein the magnitude of the vacuum applied to the first zone is different than the magnitude of the vacuum applied to the third zone.

10. The twin-wire former of claim 9 wherein the magnitude of the vacuum applied to the third zone is greater than the magnitude of the vacuum applied to the first zone.

11. The twin-wire former of claim 8 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a linear path.

12. The twin-wire former of claim 8 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop

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such that the running of the first wire loop and the second wire loop over the dewatering box is along a curved path.

13. The twin-wire former of claim 8 further comprising a pre-loading blade located inside the second wire loop upstream of the at least one dewatering box.

14. The twin-wire former of claim 8 wherein at the beginning of the at least one dewatering box there is a vacuum-free zone which is opposed by a pre-loading blade located on the side of the second wire loop.

15. A twin-wire former in a paper machine, the former comprising:

a second forming wire loop, wherein portions of the first forming wire loop and the second forming wire loop extend adjacent one another to define a twin-wire zone;

at least one dewatering box located inside the first forming wire loop, to remove water through the first forming wire loop from a web being formed, the at least one dewatering box having at least three successive zones arranged in the twin-wire zone, wherein the zones alternate between being a vacuum zone and being a vacuum-free zone; and

at least one loading blade, which is located opposite to the at least one dewatering box inside the second wire loop, the at least one loading blade being in contact with the second wire loop at a location opposed by one of the vacuum-free zones, such that the at least one loading blade is positioned such that it is preceded and followed by zones of the at least one dewatering box having vacuum applied thereto.

16. The twin-wire former of claim 15 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a linear path.

17. The twin-wire former of claim 15 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a curved path.

18. The twin-wire former of claim 15 further comprising a pre-loading blade located inside the second wire loop upstream of the at least one dewatering box.

19. The twin-wire former of claim 15 wherein at the beginning of the at least one dewatering box there is a vacuum-free zone which is opposed by a pre-loading blade located on the side of the second wire loop.

20. The twin-wire former of claim 15 wherein the at least three successive zones of the at least one dewatering box comprise a first vacuum zone and a second vacuum zone downstream of the first vacuum zone, and wherein the magnitude of the vacuum applied to the first vacuum zone is different than the magnitude of the vacuum applied to the second vacuum zone.

21. The twin-wire former of claim 20 wherein the magnitude of the vacuum applied to first vacuum zone is less than the magnitude of the vacuum applied to the second vacuum zone.

* * * * *

Relevant pages from originally filed U.S. Application No. 10/054,349

CLAIMS

I claim:

1. A twin-wire former in a paper machine including two forming wire loops, which define between themselves a twin-wire zone, and at least one
5 dewatering box, which is located inside one of the wire loops to remove water through said wire from a web being formed, and at least one loading blade, which is located opposite to the dewatering box inside the other wire loop in contact with the other wire, which dewatering box includes at least three successive dewatering zones, wherein every second zone of the dewatering box has a vacuum and every
10 second zone is vacuum-free, and the loading blade or blades is/are placed inside one of the wire loops at a location where it or them is/are opposed by a vacuum-free zone, which is preceded and followed by a vacuum zone.

2. The twin-wire former of claim 1 wherein vacuums of different magnitude are arranged in at least two vacuum zones of the dewatering box.

15 3. The twin-wire former of claim 2 wherein the magnitude of the vacuum of one of the least two vacuum zones of the dewatering box which is greater than the magnitude of another vacuum zone which precedes it in the running direction of the web.

20 4. The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a linear path.

25 5. The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a curved path.

6. The twin-wire former of claim 1 wherein in the running direction of the web before the dewatering box there is a pre-loading blade located inside the wire loop opposite to the dewatering box.

5 7. The twin-wire former of claim 1 wherein at the beginning of the dewatering box there is a vacuum-free zone which is opposed by a pre-loading blade located on the side of the second wire loop.

8. A twin-wire former in a paper machine, the former comprising:
a first forming wire loop;
a second forming wire loop, wherein portions of the first forming wire loop
10 and the second forming wire loop extend adjacent one another to define a twin-wire zone;
at least one dewatering box located inside the first forming wire loop, to remove water through the first forming wire loop from a web being formed, the at least one dewatering box having a first zone, a second
15 zone downstream of the first zone, and a third zone downstream of the second zone, the first zone and the third zone having vacuum applied thereto, and the second zone having no vacuum applied thereto; and
at least one loading blade, which is located opposite to the at least one
20 dewatering box inside the second wire loop, the at least one loading blade being in contact with the second wire loop at a location opposed by the second zone, such that the at least one loading blade is positioned such that it is preceded and followed by zones of the at least one dewatering box having vacuum applied thereto.

25 9. The twin-wire former of claim 8 wherein the magnitude of the vacuum applied to the first zone is different than the magnitude of the vacuum applied to the third zone.

10. The twin-wire former of claim 9 wherein the magnitude of the vacuum applied to the third zone is greater than the magnitude of the vacuum applied to the first zone.

5 11. The twin-wire former of claim 8 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a linear path.

10 12. The twin-wire former of claim 8 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a curved path.

13. The twin-wire former of claim 8 further comprising a pre-loading blade located inside the second wire loop upstream of the at least one dewatering box.

15 14. The twin-wire former of claim 8 wherein at the beginning of the at least one dewatering box there is a vacuum-free zone which is opposed by a pre-loading blade located on the side of the second wire loop.

15. A twin-wire former in a paper machine, the former comprising:
a first forming wire loop;
a second forming wire loop, wherein portions of the first forming wire loop
and the second forming wire loop extend adjacent one another to
define a twin-wire zone;
at least one dewatering box located inside the first forming wire loop, to
remove water through the first forming wire loop from a web being
formed, the at least one dewatering box having at least three
successive zones arranged in the twin-wire zone, wherein the zones
alternate between being a vacuum zone and being a vacuum-free
zone; and
at least one loading blade, which is located opposite to the at least one
dewatering box inside the second wire loop, the at least one loading
blade being in contact with the second wire loop at a location
opposed by one of the vacuum zones, such that the at least one
loading blade is positioned such that it is preceded and followed by
zones of the at least one dewatering box having vacuum applied
thereto.

16. The twin-wire former of claim 15 further comprising a plurality of
dewatering blades disposed on a surface of the at least one dewatering box in contact
with the first wire loop such that the running of the first wire loop and the second
wire loop over the dewatering box is along a linear path.

17. The twin-wire former of claim 15 further comprising a plurality of
dewatering blades disposed on a surface of the at least one dewatering box in contact
with the first wire loop such that the running of the first wire loop and the second
wire loop over the dewatering box is along a curved path.

Relevant pages from amendment in U.S. Application No. 10/054,349,
filed on May 20, 2003

Applicant: Michael Odell
Application No.: 10/054,349
Art Unit: 1731

Claim Listing

1. (currently amended) A twin-wire former in a paper machine including two forming wire loops, which define between themselves a twin-wire zone, and at least one dewatering box, ~~which said at least one dewatering box~~ is located inside one of the wire loops to remove water through said wire from a web being formed, and at least one loading blade, which is located opposite to the dewatering box inside the other wire loop in contact with the other wire, which dewatering box includes at least three successive dewatering zones, wherein vacuum zones alternate with vacuum-free zones ~~every second zone of the dewatering box has a vacuum and every second zone is vacuum-free~~, and the loading blade or blades is/are placed inside one of the wire loops at a location where it or them is/are opposed by one of the vacuum-free zone(s) ~~a vacuum-free zone~~, which is preceded and followed by one of the vacuum zone(s) ~~a vacuum zone~~.
2. (original) The twin-wire former of claim 1 wherein vacuums of different magnitude are arranged in at least two vacuum zones of the dewatering box.
3. (original) The twin-wire former of claim 2 wherein the magnitude of the vacuum of one of the least two vacuum zones of the dewatering box which is greater than the magnitude of another vacuum zone which precedes it in the running direction of the web.
4. (original) The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a linear path.
5. (original) The twin-wire former of claim 1 wherein on the surface of the dewatering box in contact with the wire there are dewatering blades which are disposed in such a way that the running of the wires over the dewatering box is along a curved path.

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15. (currently amended) A twin-wire former in a paper machine, the former comprising:

a first forming wire loop;

a second forming wire loop, wherein portions of the first forming wire loop and the second forming wire loop extend adjacent one another to define a twin-wire zone;

at least one dewatering box located inside the first forming wire loop, to remove water through the first forming wire loop from a web being formed, the at least one dewatering box having at least three successive zones arranged in the twin-wire zone, wherein the zones alternate between being a vacuum zone and being a vacuum-free zone; and

at least one loading blade, which is located opposite to the at least one dewatering box inside the second wire loop, the at least one loading blade being in contact with the second wire loop at a location opposed by one of the ~~vacuum~~ vacuum-free zones, such that the at least one loading blade is positioned such that it is preceded and followed by zones of the at least one dewatering box having vacuum applied thereto.

16. (original) The twin-wire former of claim 15 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a linear path.

17. (original) The twin-wire former of claim 15 further comprising a plurality of dewatering blades disposed on a surface of the at least one dewatering box in contact with the first wire loop such that the running of the first wire loop and the second wire loop over the dewatering box is along a curved path.